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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,410	02/27/2002	Takuya Saeki	43496	7390

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EXAMINER

MULLIS, JEFFREY C

ART UNIT

PAPER NUMBER

1711

DATE MAILED: 08/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/083,410

Applicant(s)

SAEKI ET AL.

Examiner

Jeffrey C. Mullis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 August 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 23.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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Claims 1-20 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention.

The identity of applicants' graft polymers is unclear for a number of reasons. For instance, the term "extremely located ether bond portion" is unclear since this term is not art recognized and furthermore "extremely" is subjective and therefore unclear. Furthermore the "extremely located ether bond portion to an end" is defined as the end structural unit and therefore it is not clear what the term "extremely located ether bond portion" might refer to in that the entire phrase "extremely located ether bond portion" to an end is merely defined as an end structural unit and therefore the term "extremely located" appears to be superfluous. Furthermore it appears that applicants' composition contains at least two polyether containing graft copolymers and therefore it is not clear which end structural units the "difference of not less than 3 number of carbon atoms" refers to given that at least 4 end units (even for a pair of linear polymers) are present. Furthermore the term "which compose each structural unit located at both ends of the main chain is composed between (sic) two of the at least two graft polymers" is confusing given that a difference must necessarily refer to two numbers, yet this phrase refers to "both

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ends of the main chain" and (two of the at least two graft polymers) is unclear which ends are being referred to, i.e. ends within the same chain or ends in different chains. Also applicants' claims are not limited as to linear polyethers and it is therefore unclear what applicants' claims embrace when polyethers containing more than two end units are present. Also the limitation "and when there is a difference in number of carbon atoms between both end structural units of each polymer, whichever is larger is defined as the number of carbon atoms in the end structural unit" is unclear given that it is not seen how a difference between two chain ends can define the number of carbon atoms in one chain end, i.e. it is not clear if such a difference in carbon atoms pertains to the definition of carbon atoms at only one chain end or at both chain ends or any other chain ends which might also be present. Lastly, the phrase "when an end is a structural unit derived from alkylene oxide, the number of atoms in this end structural unit is defined as 0" is unclear since it cannot objectively be determined when an end structural unit in a composition is derived from an alkylene oxide without knowing the process from which it is produced. For instance an hydroxyethyl chain end could be viewed as being derived from an ethylene oxide unit or could alternatively have been derived from an ethylene glycol initiating unit or chlorohydrin terminating unit.

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The number of carbon atoms embraced by applicants' grafts in at least claim 2 is unclear since it is not clearly stated which chain ends the chain end with the "smallest number of carbon atoms is being referenced to. Similarly at least claim 5 is unclear since it is also not stated which chain ends the "largest number of carbon atoms" are being referred to. At least claims 6-8, 9-12 and 14-16 are similarly defective.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-20 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yamaguchi et al. (EP 850963), cited by applicants.

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Applicants' claims all appear to embrace compositions requiring at least 2 polyether graft copolymers, but applicants' claims, while appearing to contain a limitation regarding the end unit moieties or moieties near the end unit, are ambiguous as to what the specific end unit moiety or moiety near the end unit is.

Yamaguchi et al. disclose a detergent builder (page 12 lines 45-50) containing three different polyethers (di, tri and tetrapolyethylene glycol) grafted by maleic anhydride in Example 10. Although applicants' claims appear to be limited to polyether graft copolymers containing at least two polyether graft copolymers in which there is a difference in the number of carbons at the end unit (although this is certainly by no means clear), patentees' tetraethylene glycol can be viewed as being derived from tetraethylene glycol and not from an alkylene oxide and would therefore contain 4 carbon atoms. Note that page 4 lines 44-46 discloses that the polyethers may be initiated by diethylene glycol. Therefore the limitations of the claims appear to be met by Yamaguchi et al. If the Examiner is mistaken that Example 10 meets the limitation of the claims, then in any case patentees at page 4 lines 46-51 disclose that secondary alcohols having 3-18 carbon atoms etc. may be used to cap polyethers. Although perhaps applicants intend that alkyl units having at least 3 more carbon atoms in one end of the chain than

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the other are only embraced by the claimed invention (and this is by no means clear) addition of propyl or higher carbon number terminated polyethers to the composition of the Examples or a placement of one of the polyethers of Example 10 of the patent would have been obvious to a practitioner having ordinary skill in the art at the time of the invention in that patentees disclose that such materials are operable and in the expectation of adequate results absent any showing of surprising or unexpected results.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Mullis whose telephone number is (703) 308-2820. The examiner can normally be reached on Monday-Friday from 9:30 to 6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck, can be reached on (703) 308-2462. The fax phone number for this Group is before final (703) 872-9310 and after final (703) 8729311.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-2351.

J. Mullis:cdc

August 7, 2003

Serial No. 10/083,410

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Jeffrey Mullis
Primary Examiner
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A handwritten signature in black ink, appearing to be 'JM', located below the printed name and title.